

AMENDMENT

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1 1. (Currently Amended) A multi-spectral detector for use in a passive /active system,
2 comprising:
 - 3 an optically dispersive element capable of separating received LADAR radiation and
4 radiation received from a scene into a plurality of spectral components and
5 distributing the separated spectral components; and
 - 6 a detector array including:
 - 7 a plurality of detectors capable of detecting the LADAR radiation; and
 - 8 a plurality of detectors capable of detecting the spectral components of the scene
9 radiation; and
 - 10 an integrated circuit capable of generating a plurality of electrical signals representative
11 of predetermined characteristics of the detected LADAR radiation and the
12 detected spectral components.
- 1 2. (Original) The detector of claim 1, wherein the optically dispersive element comprises a
2 diffraction grating or a linear variable filter.
- 1 3. (Original) The detector of claim 2, wherein the optically dispersive element is integrated
2 with the detector array.
- 1 4. (Original) The detector of claim 1, wherein the optically dispersive element is integrated
2 with the detector array.
- 1 5. (Original) The detector of claim 1, wherein the detectors capable of detecting the
2 LADAR radiation or the detectors capable of detecting the spectral components of the scene
3 radiation comprise QWIPs or EQWIPs.
- 1 6. (Original) The detector of claim 1, wherein the detectors capable of detecting the
2 LADAR radiation or the detectors capable of detecting the spectral components of the scene
3 radiation have varied widths and are separated by varied pitches.

1 7. (Original) The detector of claim 6, wherein the detectors capable of detecting the
2 LADAR radiation or the detectors capable of detecting the spectral components of the scene
3 radiation comprise QWIPs or EQWIPs.

1 8. (Original) The detector of claim 1, wherein the detector array is integrated with the
2 integrated circuit.

1 9. (Original) The detector of claim 8, wherein the optically dispersive element is integrated
2 with the detector array.

1 10. (Currently Amended) A multi-spectral detector for use in a passive /active system,
2 comprising:

3 means for distributing a plurality of spectral components of received LADAR radiation
4 and ~~infrared~~ radiation received from a scene;
5 means for detecting the distributed LADAR radiation;
6 means for detecting the spectral components of the infrared radiation; and
7 means for generating a plurality of electrical signals representative of predetermined
8 characteristics of the detected LADAR radiation and the detected spectral
9 components.

1 11. (Currently Amended) The detector of claim 10, wherein the distributing means diffracts
2 the received LADAR and ~~infrared~~ radiation.

1 12. (Original) The detector of claim 11, wherein the distributing means comprises a
2 diffraction grating.

1 13. (Original) The detector of claim 10, wherein the distributing means comprises a
2 diffraction grating.

1 14. (Original) The detector of claim 10, wherein the distributing means is integrated with the
2 detecting means.

1 15. (Original) The detector of claim 10, wherein the detecting means comprises QWIPs or
2 EQWIPs.

1 16. (Original) The detector of claim 10, wherein detecting means comprises a plurality of
2 detectors have varied widths and are separated by varied pitches.

1 17. (Original) The detector of claim 10, wherein the detecting means is integrated with the
2 generating means.

1 18. (Currently Amended) An imaging system, comprising:
2 a laser capable of transmitting LADAR radiation;
3 a multi-spectral detector for use in a passive /active system, comprising:
4 an optically dispersive element capable of separating received LADAR radiation
5 and radiation received from a scene into a plurality of spectral components
6 and distributing the separated spectral components; and
7 a detector array including:
8 a plurality of detectors capable of detecting the LADAR radiation; and
9 a plurality of detectors capable of detecting the spectral components of the
10 scene radiation; and
11 an integrated circuit capable of generating a plurality of electrical signals
12 representative of predetermined characteristics of the detected
13 LADAR radiation and the detected spectral components; and
14 a processor for processing the electrical signals.

1 19. (Original) The imaging system of claim 18, wherein the optically dispersive element
2 comprises a diffraction grating or a linear variable filter.

1 20. (Original) The imaging system of claim 18, wherein the optically dispersive element is
2 integrated with the detector array.

1 21. (Original) The imaging system of claim 18, wherein the detectors capable of detecting the
2 LADAR radiation or the detectors capable of detecting the spectral components of the scene
3 radiation comprise QWIPs or EQWIPs.

1 22. (Original) The imaging system of claim 18, wherein the detectors capable of detecting the
2 LADAR radiation or the detectors capable of detecting the spectral components of the scene
3 radiation have varied widths and are separated by varied pitches.

1 23. (Original) The imaging system of claim 18, wherein the detector array is integrated with
2 the integrated circuit.

1 24. (Original) A method for use in identifying an object in a field of view, comprising:
2 passively detecting radiation from a scene, the detection employing a detector array; and
3 actively detecting LADAR radiation through the detector array in parallel with passively
4 detecting the scene radiation.

1 25. (Original) The method of claim 24, wherein passively detecting scene radiation includes
2 passively detecting infrared radiation.

1 26. (Original) The method of claim 25, wherein passively detecting infrared radiation
2 includes passively detecting hyperspectral infrared radiation.

1 27. (Original) The method of claim 24, wherein passively detecting scene radiation includes
2 passively detecting hyperspectral scene radiation.

1 28. (Original) The method of claim 24, further comprising receiving the scene and LADAR
2 radiation through the same optical train.

1 29. (Original) The method of claim 28, wherein detecting the scene and LADAR radiation
2 includes separating the received LADAR and scene radiation into a plurality of spectral
3 components and distributing the separated spectral components across the detector array.

1 30. (Original) The method of claim 24, further comprising generating a plurality of electrical
2 signals representative of predetermined characteristics of the detected LADAR radiation and the
3 detected spectral components.

1 31. (Original) An apparatus for use in identifying an object in a field of view, comprising:
2 means for passively detecting scene radiation employing a detector array; and

3 means for actively detecting LADAR radiation through the detector array in parallel with
4 passively detecting the scene radiation.

1 32. (Original) The apparatus of claim 31, wherein the means for passively detecting scene
2 radiation includes means for passively detecting infrared radiation.

1 33. (Original) The apparatus of claim 31, wherein the means for passively detecting scene
2 radiation includes means for passively detecting hyperspectral scene radiation.

1 34. (Original) The apparatus of claim 31, further comprising means for receiving the scene
2 and LADAR radiation through the same optical train.

1 35. (Original) The apparatus of claim 31, further comprising means for generating a plurality
2 of electrical signals representative of predetermined characteristics of the detected LADAR
3 radiation and the detected spectral components.

1 36. (Original) A method, comprising:
2 receiving LADAR and scene radiation from a field of view;
3 separating the received LADAR and scene radiation into a plurality of spectral
4 components;
5 directing the spectral components to respective detectors;
6 detecting the spectral components; and
7 generating an electrical signal representative of predetermined characteristics of the
8 detected spectral components.

1 37. (Original) The method of claim 36, wherein receiving the scene radiation includes
2 receiving infrared radiation.

1 38. (Original) The method of claim 36, wherein receiving the scene radiation includes
2 receiving hyperspectral scene radiation.

1 39. (Original) The method of claim 36, wherein receiving the scene and LADAR radiation
2 includes receiving the scene and LADAR radiation through the same optical train.

1 40. (Original) An apparatus, comprising:

2 means for receiving LADAR and scene radiation from a field of view;
3 means for separating the received LADAR and scene radiation into a plurality of spectral
4 components;
5 means for directing the spectral components to respective detectors;
6 means for detecting the spectral components; and
7 means for generating an electrical signal representative of predetermined characteristics
8 of the detected spectral components.

1 41. (Original) The apparatus of claim 40, wherein the means for receiving the scene radiation
2 includes means for receiving infrared radiation.

1 42. (Original) The apparatus of claim 40, wherein the means for receiving the scene radiation
2 includes means for receiving hyperspectral scene radiation.

1 43. (Original) The apparatus of claim 40, wherein the means for receiving the scene and
2 LADAR radiation includes means for receiving the scene and LADAR radiation through the
3 same optical train.

1 44. (New) The apparatus of claim 31, further comprising:
2 means for separating received LADAR radiation and radiation received from a scene into
3 a plurality of spectral components; and
4 means for distributing the separated spectral components across the detector array.